



U.S. Department of Energy
Energy Efficiency and Renewable Energy

MAXIMIZING YOUR LIGHT OUTPUT

While minimizing your maintenance and
energy costs



LIGHTING SYSTEMS

- LUMINAIRES
 - LDD
 - CU
- BALLAST(S)
 - Instant start
 - Program Rapid Start
 - Ballast Factor
- LAMPS
 - Average Rated Life
 - Initial vs mean lumens
 - Footcandles
 - Color Temperature
 - Color Rendering Index



THE COST OF LIGHT

➤ **Lighting costs can account for as much as 40% of a typical building's cost of operation**

➤ **Cost of Light = Utility Power Cost + maintenance cost + replacement light bulb cost + replacement ballast cost + replacement fixture cost**

➤ **Power Cost = $\frac{\text{burning hours} \times \text{\$/KWH} \times \text{fixture wattage} \times \text{number of fixtures}}{1000}$**



Cost of Light

Electricity	84%
Maintenance	12%
Lamps	4%

- First costs represent the tip of the iceberg.
- Power and maintenance costs can be the hidden costs associated with lighting.





Maintenance Costs

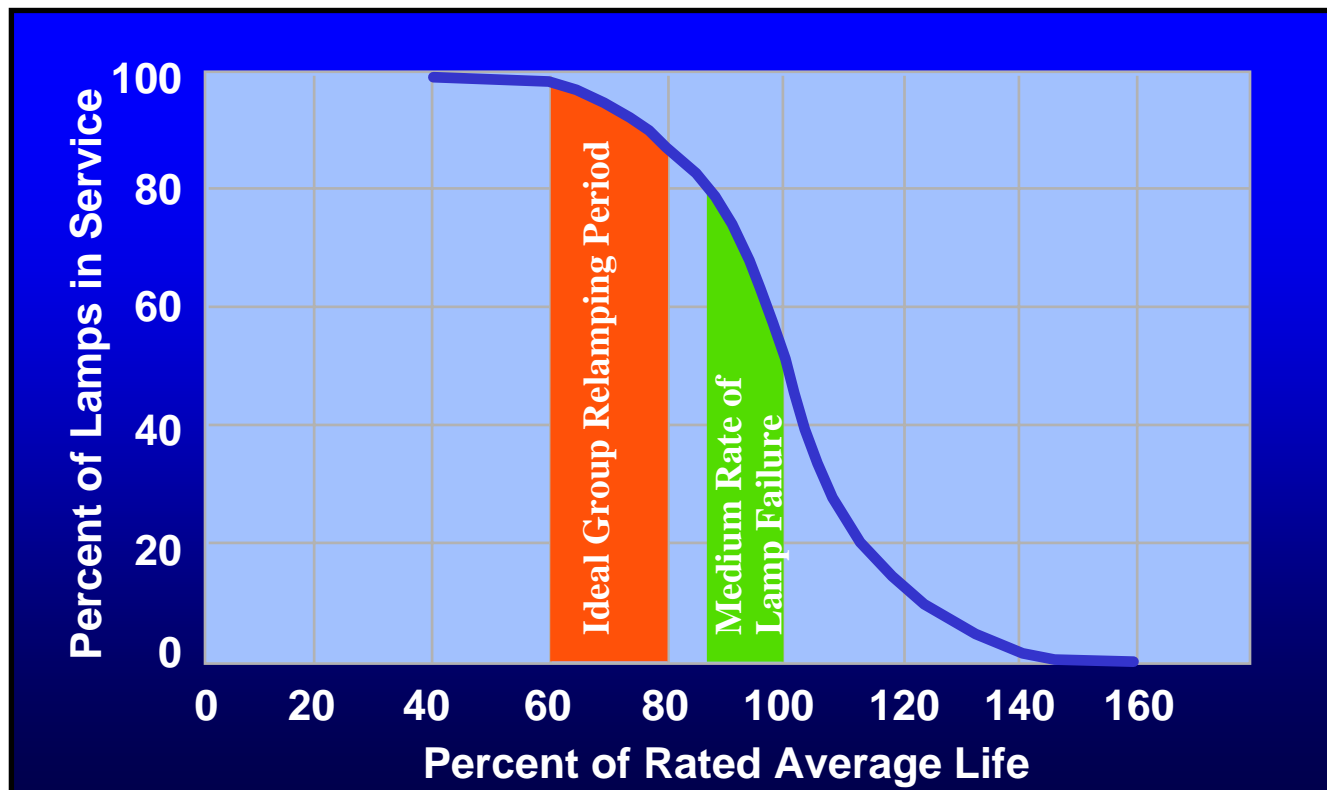
Group Re-lamping and cleaning means..

- Higher maintained light levels
- Energy savings
- Fewer work interruptions
- Auxiliary equipment savings
- Labor savings
- Productive work environment



Maintenance Cost

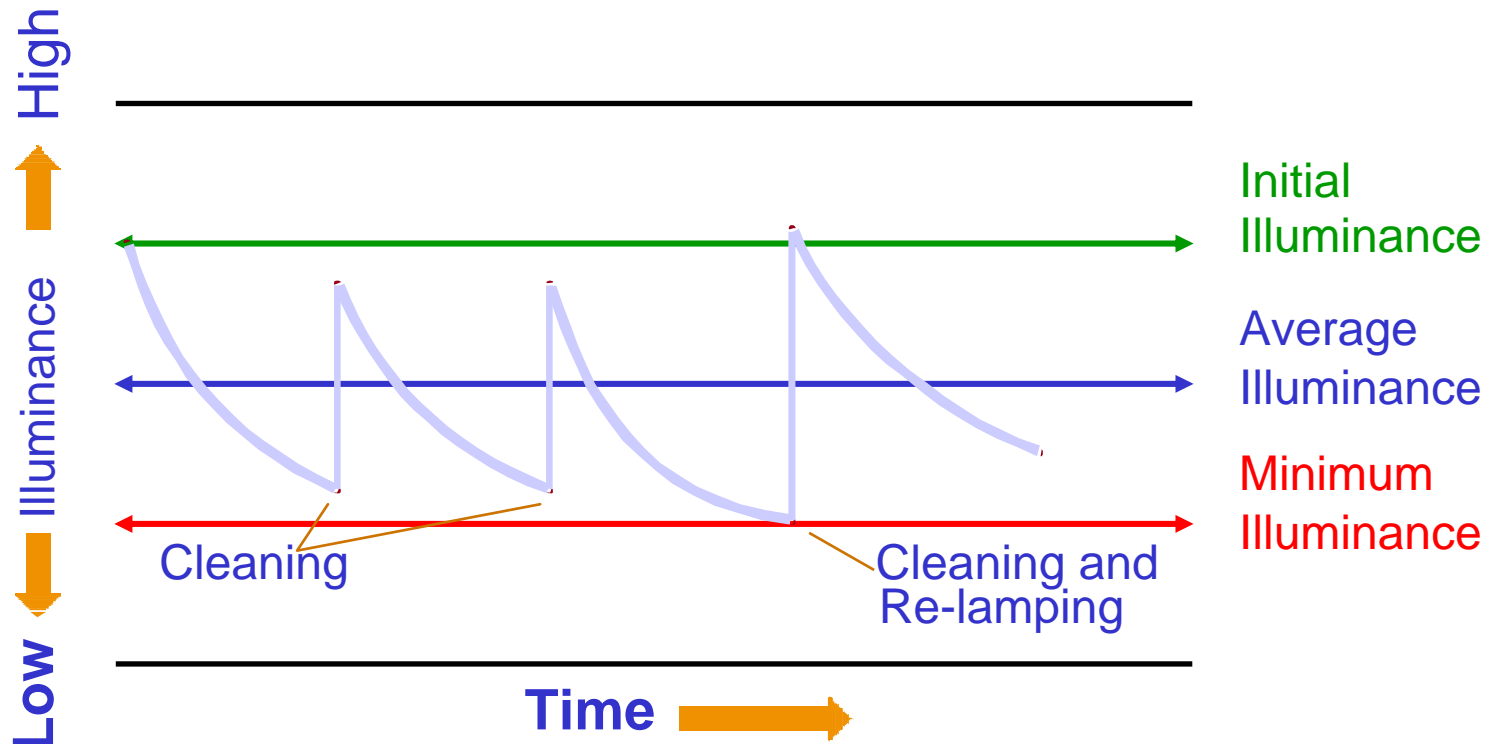
When to group re-lamp?





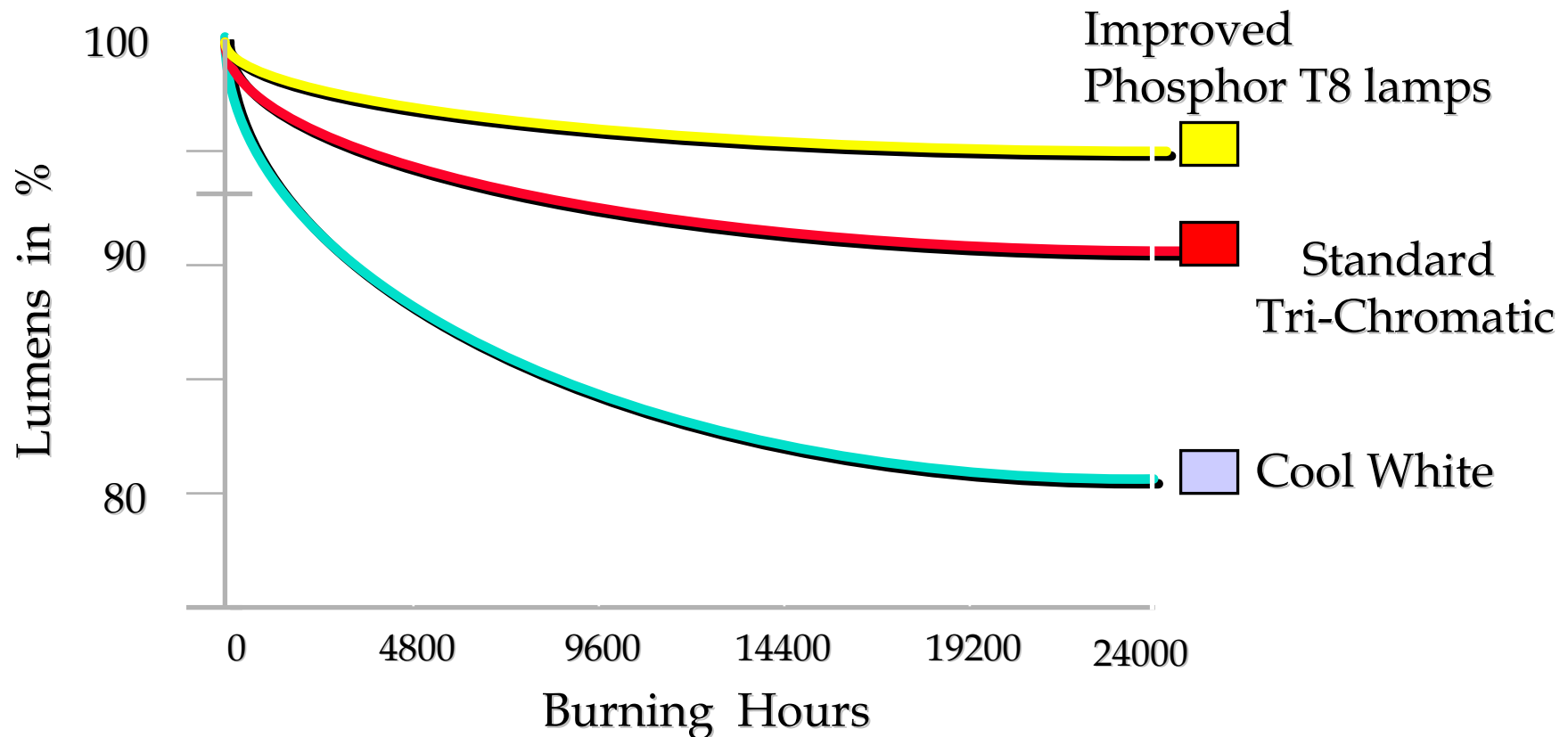
Maintenance Costs

- Group Re-lamp and enjoy higher maintained light output and more efficient use of labor!





Lumen Maintenance Curves





CONCLUSIONS

- Proper selection of fixtures, lamps, and ballasts can provide satisfactory and quality light levels and at the same time substantially reduce the cost of energy thereby impacting the total cost of light.
- Consistent scheduled fixture maintenance can provide satisfactory maintained light levels and impact the total cost of light.



QUESTIONS - COMMENTS



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